

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent Application of

TORÉ

Atty. Ref.: 2789-40

Serial No. to be assigned

Group: unknown

Filed: June 15, 2001

Examiner: unknown

For: RECEIVER AND METHOD FOR AVOIDING INTERSYMBOL INTERFACE IN A  
HIGH SPEED TRANSMISSION SYSTEM

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Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

**PRELIMINARY AMENDMENT**

In order to place the above-identified application in better condition for examination,  
please amend the application as follows:

**IN THE CLAIMS**

Please substitute the following amended claims 1-14 for corresponding claims 1-14.  
A copy of the amended claims showing current revisions is attached.

1. {AMENDED} A receiver for a high speed transmission system for receiving a first  
signal (B) over a transmission path, said first signal (B) comprising a plurality of data  
symbols which are successively transmitted, in front of each being a first prefix for avoiding  
an interference between said successively transmitted data symbols, said receiver  
comprising:

- means for generating a second a second prefix for each first prefix in front of each  
of said plurality of data symbols; and
- replacing means for replacing said first prefix by said second prefix, said second  
prefix respectively having a length longer than that of said first prefix to be replaced,  
characterized by

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- a buffer for buffering said first signal;
  - a filter having a pass characteristic such that said first signal can pass comprising a first filter portion having a finite impulse response introducing zeros in the transfer function of said filter and a second filter portion having an infinite impulse response introducing poles in the transfer function of said filter;
  - wherein said first filter portion is arranged in front of said replacing means with respect to said transmission path, and said second filter portion behind thereof.
2. {AMENDED} A receiver according to claim 1, characterized by receiving a second signal (A) over said transmission path simultaneously with said first signal (B), said first and said second signal having different frequency bands, and said pass characteristic of said filter being such that said second signal (A) cannot pass said filter.
3. {AMENDED} A receiver according to claim 1, characterized in that for a given data symbol, said second prefix is a part of said given data symbol.
4. {AMENDED} A receiver according to claim 1, characterized by
- said buffer comprising a first buffer portion and a second buffer portion;
  - a switching means for switching said transmission path to said first and second buffer portions such that successively transmitted ones of said plurality of data symbols are alternately buffered in said first and second buffer portions.
5. {AMENDED} A receiver according to claim 1, characterized in that, said means for generating a second prefix generates said second prefix with a length corresponding to a parameter derived from a impulse response of said filter such that an interference of successive ones of said plurality of data symbols of said first signal (B) caused by transients of said filter is avoided.

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6. {AMENDED} A receiver according to claim 1, characterized in that said transmission path is a telephone line and said second signal is a telephone service or an ISDN service.
7. {AMENDED} A modem including a receiver according to claim 1.
8. {AMENDED} A method for receiving a signal (B) on a receiving side of a transmission system, said signal comprising data symbols and a first prefix in front of each data symbol for avoiding an interference of successively transmitted data symbols, comprising the following steps:
  - receiving said signal on the receiving side;
  - buffering said received signal;
  - generating a second prefix for each first prefix in front of each of said data symbols;
  - replacing said first prefix by said second prefix, said second prefix having a length longer than that of said first prefix to be replaced;
  - filtering said signal, wherein said first prefix has been replaced by said second prefix, by means of a filter having a pass characteristic such that said signal can pass, including firstly filtering said signal with a first filter portion having a finite impulse response (FIR) introducing zeros in the transfer function of said filter before replacing said first prefix and secondly filtering said signal (B) wherein said first prefixes have been replaced by said second prefixes by means of a second filter portion having an infinite impulse response (IIR) including poles in the transfer function of said filter.
9. {AMENDED} A method according to claim 8, characterized in that for a given data symbol, said second prefix is generated by using a part of said given data symbol.

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10. {AMENDED} A method according to claim 8, characterized in that said buffering of said received signal (B) is performed by switching said transmission path to a first and a second buffer portion such that successively received data symbols are alternately stored in said first and second buffer portion.

11. {AMENDED} A method according to claim 8, characterized in that said second prefix is generated with a length corresponding to a parameter derived from an impulse response of said filter such that an interference of successive data symbols of said signal (B) caused by transients of said filter is avoided..

#### REMARKS

The above amendments are made to place the claims in a more traditional format.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version With Markings To Show Changes Made."

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

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By: 

H. Warren Burnam, Jr.  
Reg. No. 29,366

HWB:lsh  
1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100

**VERSION WITH MARKINGS TO SHOW CHANGES MADE****IN THE CLAIMS**

1. {AMENDED} A receiver for a high speed transmission system for receiving a first signal (B) over a transmission path [(30)], said first signal (B) comprising a plurality of data symbols [(50a, 51a, 52a)] which are successively transmitted, in front of each being a first prefix [(50b, 51b, 52b)] for avoiding an interference between said successively transmitted data symbols [(50a, 51a, 52a)], said receiver comprising:

- means [(33)] for generating a second a second prefix [(53, 55)] for each first prefix [(50b, 51b, 52b)] in front of each of said plurality of data symbols [(50a, 51a, 52a)]; and
- replacing means [(34)] for replacing said first prefix [(50b, 51b, 52b)] by said second prefix [(53, 55)], said second prefix [(53, 55)] respectively having a length longer than that of said first prefix [(50b, 51b, 52b)] to be replaced,

characterized by

- a buffer [(32)] for buffering said first signal;
- a filter [(35)] having a pass characteristic such that said first signal can pass comprising a first filter portion [(60)] having a finite impulse response introducing zeros in the transfer function of said filter [(35)] and a second filter portion [(61)] having an infinite impulse response introducing poles in the transfer function of said filter [(35)];
- wherein said first filter portion [(60)] is arranged in front of said replacing means [(34)] with respect to said transmission path [(30)], and said second filter portion [(61)] behind thereof.

2. {AMENDED} A receiver according to claim 1, characterized by receiving a second signal (A) over said transmission path [(30)] simultaneously with said first signal (B), said first and said second signal having different frequency bands, and said pass characteristic of said filter [(35)] being such that said second signal (A) cannot pass said filter [(35)].

3. {AMENDED} A receiver according to claim 1 [or 2], characterized in that for a given data symbol [(50a, 51a, 52a)], said second prefix [(53, 55)] is a part of said given data

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symbol.

4. {AMENDED} A receiver according to claim 1, [2 or 3,] characterized by
  - said buffer [(32)] comprising a first buffer portion [(41)] and a second buffer portion [(42)];
  - a switching means [(40)] for switching said transmission path [(30)] to said first and second buffer portions [(41, 42)] such that successively transmitted ones of said plurality of data symbols [(50a, 51a, 52a)] are alternately buffered in said first and second buffer portions [(41, 42)].
5. {AMENDED} A receiver according to [one of claims 1 to 4] claim 1, characterized in that, said means [(33)] for generating a second prefix generates said second prefix [(53, 55)] with a length corresponding to a parameter derived from a impulse response of said filter [(35)] such that an interference of successive ones of said plurality of data symbols [(50a, 51a, 52a)] of said first signal (B) caused by transients of said filter [(35)] is avoided.
6. {AMENDED} A receiver according to [one of the claims above] claim 1, characterized in that, said transmission path [(30)] is a telephone line and said second signal is a telephone service or an ISDN service.
7. {AMENDED} A modem including a receiver according to claim 1 [6, characterized in that it is part of a modem].
8. {AMENDED} A method for receiving a signal (B) on a receiving side of a transmission system, said signal comprising data symbols [(50a, 51a, 52a)] and a first prefix [(50b, 51b, 52b)] in front of each data symbol [(50a, 51a, 52a)] for avoiding an interference of successively transmitted data symbols [(50a, 51a, 52a)], comprising the following steps:
  - receiving said signal on the receiving side [(S1)];
  - buffering said received signal [(S2)];
  - generating a second prefix for each first prefix in front of each of said data symbols

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[(S3)];

- replacing said first prefix by said second prefix, said second prefix having a length longer than that of said first prefix to be replaced [(S4)];

- filtering said signal, wherein said first prefix has been replaced by said second prefix, by means of a filter having a pass characteristic such that said signal can pass [(S5)], including firstly filtering said signal with a first filter portion [(60)] having a finite impulse response (FIR) introducing zeros in the transfer function of said filter [(35)] before replacing said first prefix [(50b, 51b, 52b)] and secondly filtering said signal (B) wherein said first prefixes [(50b, 51b, 52b)] have been replaced by said second prefixes [(50a, 51a, 52a)] by means of a second filter portion [(61)] having an infinite impulse response (IIR) including poles in the transfer function of said filter [(35)].

9. {AMENDED} A method according to claim 8, characterized in that for a given data symbol [(50a, 51a, 52a)], said second prefix [(53, 55)] is generated by using a part of said given data symbol.

10. {AMENDED} A method according to claim 8 [or 9], characterized in that said buffering of said received signal (B) is performed by switching said transmission path [(30)] to a first and a second buffer portion [(40, 41)] such that successively received data symbols [(50a, 51a, 52a)] are alternately stored in said first and second buffer portion [(40, 41)].

11. {AMENDED} A method according to [one of claims 8 to 10] claim 8, characterized in that said second prefix [(53, 55)] is generated with a length corresponding to a parameter derived from an impulse response of said filter [(35)] such that an interference of successive data symbols [(50a, 51a, 52a)] of said signal (B) caused by transients of said filter [(35)] is avoided..